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Air Connectivity in Archipelagic Southeast Asia: An Overview

Keith Trace, Barend Frielink, and Denis Hew

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Acronyms and Abbreviations

ASA	-	air service agreement
aSEA	-	archipelagic Southeast Asia
ASEAN	-	Association of Southeast Asian Nations
BIA	-	Brunei International Airport
BIMP-EAGA	-	Brunei Darussalam–Indonesia–Malaysia–Philippines East ASEAN Growth Area
GDP	-	gross domestic product
IMT-GT	-	Indonesia–Malaysia–Thailand Growth Triangle
KLIA	-	Kuala Lumpur International Airport
km	-	kilometers
PNG	-	Papua New Guinea
US	-	United States

1. Introduction

Archipelagic Southeast Asia (aSEA) covers five member countries of the Association of Southeast Asian Nations (ASEAN)—Brunei Darussalam, Indonesia, Malaysia, the Philippines, and Singapore—together with Papua New Guinea and Timor-Leste.¹ The aSEA region includes the Brunei Darussalam–Indonesia–Malaysia–Philippines East Asian Growth Area (BIMP-EAGA) and the Indonesia–Malaysia–Thailand Growth Triangle (IMT-GT) subregional cooperation programs.

The key to understanding the region lies in an appreciation of its archipelagic nature. aSEA includes more than 24,000 islands, spread across 5,200 kilometers (km) from east to west and 3,400 km from north to south. It has a population of over 350 million, 225 million of whom live in Indonesia with a further 87 million living in the Philippines (Green 2008).

To the inhabitants of the archipelago, the sea is at once a link and a barrier, as well as a resource and a challenge. On the positive side of the ledger, the sea provides food and employment, while the danger of an unsustainable marine environment and the fact that proximity to the sea heightens vulnerability to national disaster are potential negatives.

This paper provides an overview of airline connectivity in the aSEA region. Section 2 discusses the economic diversity and development gap that exists among the aSEA countries. Section 3 examines the importance of improving airline connectivity in bridging this economic divide at the local, regional, and international levels. Section 4 examines the demand for airline passenger and freight services in the aSEA region. In Section 5 we investigate the supply of airline services on regional and long-distance (intercontinental) routes. Special attention is paid to the emergence of low-cost airlines and the supply of airline services on "thin" regional routes, such as those linking regions of BIMP-EAGA. Section 6 assesses the region's aviation infrastructure, contrasting the efficiency of major hub airports with the problems experienced by regional airports. Section 7 examines regional policies relating to air transport, arguing that an industry historically subject to close regulation has benefited from market liberalization, privatization, and a relaxation of restrictive ownership rules. Section 8 contains policy recommendations designed to strengthen aviation connectivity. This section also highlights the costs and potential problems that may arise with the implementation of policies to improve aviation connectivity.

2. The aSEA Economies

The aSEA economies are extremely diverse (Table 1, page 30). Their population varies from 225 million in Indonesia to 40,000 in Brunei. Gross domestic product (GDP) per capita varies from \$440 in Timor-Leste to over \$35,000 in Singapore. aSEA countries differ

¹ Where relevant, this report will make reference to Thailand as well.

significantly in their reliance on foreign trade. Measured by the ratio of exports to GDP, the degree of trade openness varies widely from 2.2% in Timor-Leste to 230.9% in Singapore.

While the ASEAN member nations of aSEA are at first glance diverse, they share a number of common features. Singapore is a mature economy with a level of GDP per capita comparable with many advanced western industrial nations. Having experienced strong economic growth in the 1980s and early 1990s, Malaysia has enjoyed renewed growth following the Asian financial crisis of the late 1990s. Brunei is a wealthy country heavily dependent on earnings from oil. Indonesia developed rapidly in the 1980s based on labor-intensive manufacturing (mainly centered on Java) but has failed to maintain early momentum. The Philippines has yet to take off economically with sustained growth. These countries have a number of features in common: (i) relatively open economic policies, (ii) low and reducing levels of tariff protection, (iii) and a strong reliance on export-led economic growth. Indonesia, Malaysia, and the Philippines also have in common large areas that are not well connected and much poorer than the main centers (eastern Indonesia, East Malaysia, southern Philippines).

Papua New Guinea (PNG) and Timor-Leste are at a much earlier stage of economic growth than their ASEAN counterparts. Not only is their GDP per capita much lower but Timor-Leste's very low trade intensity also reflects the country's wider political and economic problems. PNG and Timor-Leste's transport needs and existing service patterns differ significantly from those of the ASEAN members of aSEA. Timor-Leste has extremely limited airline and shipping links. PNG's connectivity is also poor and tends to be oriented toward Australia rather than Southeast Asia.

The development gap between the ASEAN members of aSEA and Papua New Guinea can be considered analogous with that between the more advanced ASEAN countries (the ASEAN 6) and the newer and less-developed members, i.e., Cambodia, Lao People's Democratic Republic, Myanmar, and Viet Nam.

3. The Importance of Air Connectivity

Improved air connectivity through air transport links is an essential component of economic growth, as it provides personal access to the region for business, social, or recreational purposes, as well as physical access to resources and markets. Improved access allows producers to take advantage of an expansion of trade, economies of scale, and specialization, thus lowering costs and prices and widening production choices. The geography of the region favors air transport, Distances between capital cities are substantial and cross-border land links limited. Moreover, in archipelagic countries such as Indonesia and the Philippines, travelers have to choose between relatively slow and uncomfortable combinations of sea and land transport and relatively swift air passage.

Air transport carries both passengers and freight. Regular scheduled airline services are especially important for business communication, facilitating both trade and investment. They also play a critical role in stimulating leisure travel, a vital sector, given the importance of tourism for the aSEA economies. While most passengers fly on regular scheduled airline services, charter flights are important in specialist markets such as pilgrimage traffic between Southeast Asia and the Middle East. Air freight is carried in the cargo holds of passenger aircraft and specialist cargo aircraft.

At a local level, Tier 4 air services connect local communities with regional centers. In aSEA, such connections often link island communities with their closest regional center. Where such routes are internal, they are subject to cabotage restrictions, reserving air services for airlines owned by citizens of the country. They are usually serviced by small 6–18 seat prop or turbo-prop aircraft. While some routes may be commercially viable, many require subsidization.

Improved air connectivity at a regional level enables business to provide better service to customers and offer opportunities for tourism and improved social networking. Enhanced air connectivity widens the potential market available to local producers, providing opportunities to specialize in agricultural or industrial production according to comparative or competitive advantage. The economies of scale generated may enable firms to lower the unit price of their products and further widen their market.

Regional air services include (i) airline services between regional centers within country A; (ii) airline services between regional centers in country A and that country's metropolitan market; (iii) airline services connecting regional centers in country A with regional centers in countries B, C, and D; and (iv) airline services between regional centers in country A and key regional aviation hubs. From an aviation industry perspective, such services may be divided into "high" and "low" frequency routes (Table 2, page 31).

"High" frequency routes (Tier 2 services) are capable of supporting a jet service (A319, A320, B737, or similar aircraft) on a regular basis.² They may be served by more than one airline. Where such routes link regional centers within a single country, they are subject to cabotage restrictions. Where they link regional centers in two or more countries, they are regulated by air service agreements (ASAs) between the countries concerned.

"Low" frequency routes (Tier 3 services) are characterized by limited traffic flows. They may only be able to sustain services by a single carrier. In practice they are often operated by surplus jet capacity (A319, A320, B737, or similar) although they may be more suited to turbo-prop aircraft, which may offer a higher frequency service compatible with market requirements. As noted above, where such routes link regional centers in a given country, they are subject to cabotage restrictions. Routes between two or more countries are regulated by ASAs between the countries in question. Some routes may not be viable in the long run.

² "A" denotes an aircraft type manufactured by Airbus Industrie, while "B" denotes an aircraft type produced by the US-owned Boeing Aircraft Corporation.

In a globalized world, efficient air connections between the aSEA region and major international markets are essential. The scale of passenger arrivals and departures at the region's major airports attests to the importance of air travel in the 21st century. The volume of air cargo consigned to and from the region has also grown rapidly. Since the 1980s, leading aSEA countries have enjoyed rapid, export-oriented economic growth, driven by mainly Japanese companies choosing to move production offshore and the quest for low-cost production by European and US companies as well as by declining US industrial competitiveness. According to the United Nations Conference on Trade and Development (UNCTAD), manufactures account for over 70% of world merchandise trade by value.³ Although a high proportion of manufactured exports, when measured by volume, are carried by sea, high value and/or perishable products are shipped by air.

4. Demand for Airline Services

4.1 Passenger Services

The demand for international airline services to and from any given country will depend on

- the country's population level;
- its income per capita (high levels of discretionary income being associated with high levels of demand for international travel);
- the geographical location of the country, and especially its suitability as an international hub for aviation services; and
- the relative attractiveness of the country as an international tourist destination.

The scale of the aviation sector within aSEA countries and its potential for future growth depend not only on the population of the country concerned, but also on its per capita income level, geography, attractiveness to foreign tourists, and its suitability as an airline hub. The population of the aSEA region is over 350 million, with that of individual states varying from 40,000 in Brunei Darussalam to 87 million in the Philippines and 225 million in Indonesia. Per capita income varies from approximately \$440 in Timor-Leste to \$1,925 in Indonesia, \$32,000 in Brunei Darussalam, and \$35,000 in Singapore. Citizens of Brunei Darussalam and Singapore enjoy relatively high levels of discretionary income, with the result that expenditure on airline services per capita is much higher than that of Timor-Leste or Indonesian citizens.

³ See United Nations Conference on Trade and Development (UNCTAD), *Review of Maritime Transport 2008*, New York and Geneva, United Nations, 2008, p. 8.

4.2 Demand for Intercontinental (Long Distance) Airline Services

Intercontinental services operated by major international carriers (Singapore Airlines, Malaysian Airlines, Thai International) call at regional hub airports (Singapore, Kuala Lumpur, Bangkok).

High demand for both tourist and business travel to and from Singapore underpins Changi Airport's role as the major airline hub of Southeast Asia. Singapore's role as a major business and financial center with global links creates a substantial demand for premium aviation travel. Similarly, inbound and outbound tourist numbers are high. Singapore is a popular stopover en route from Europe to East Asia and Australasia and is a major tourist destination in its own right. In 2007, the total number of visitors exceeded 10 million. Singaporeans' high discretionary incomes also generate significant numbers of outbound tourists. The small size of Singapore Island, high population density and high per capita income encourage Singaporeans to travel abroad. In 2007, there were 6.0 million outbound departures by Singapore residents, 4.2 million of which were by air (See Table 3, page 33).

Malaysia too is an important tourist and business destination and relatively large numbers of Malaysian students study abroad.⁴ Demand for long-distance international airline passenger services to and from Malaysia is therefore high, as is shown by airport arrivals and departures. Kuala Lumpur International Airport (KLIA) handled 24.1 million passengers in 2006 (17.5 million in 2003).

While the employment of Filipino domestics in Asia and the Middle East, as well as the movement of Filipino crews to and from their vessels, enhances the Philippines demand for overseas travel, average per capita incomes are too low to generate mass outward tourism. However, 1.9 million inbound tourists in 2002 generated \$US2.5 billion in foreign exchange, contributing \$US5.7 billion to GDP and employing (directly and indirectly) around 3 million Filipinos. Most tourists arrived from the US, Japan, South Korea and Hong Kong.

Traffic to and from PNG and Timor-Leste is by above standards miniscule. The demand for airline services to and from PNG is limited by the relative unattractiveness of PNG to international tourists as well as by the low disposal income of PNG citizens. Incoming tourist numbers are small, only 5% of arrivals being for leisure purposes. No significant growth of inbound tourism is likely in the near future as a result of the security situation and the lack of hotel infrastructure. The bulk of the air travel market is business and expatriate travel. Airline schedules to and from PNG suggest that the primary origin and destination is Australia. Air Niugini, the national carrier, is the sole provider of direct services to aSEA countries. The airline operates two B767 services a week from Port Moresby to Singapore, totaling 534 seats in each direction. A 234-seat B757 operates weekly direct services from Port Moresby to Kuala Lumpur, Manila and Hong Kong.

Given the very low income level of its citizens, demand for air services to and from Timor-Leste would appear to stem mainly from government officials and representatives of

⁴ We note also that a sizable number of students from the aSEA region study in Malaysia and Singapore.

international agencies operating in the country. Demand for and supply of air freight appears to be very limited.

4.2.1 Demand for Regional Airline Services

There is a substantial demand for airline services between aSEA countries, especially between the ASEAN members of aSEA. Given the development of the manufacturing sector in ASEAN countries and the tendency to integrate production regionally, one would expect to find a substantial proportion of the airline traffic is generated by business travelers.

Table 4 (page 34), based on ASEAN data for tourist arrivals, shows the substantial scale of intra-ASEAN tourism. The data suggest that Malaysia is the most important regional holiday destination for ASEAN citizens, followed by Singapore and Thailand. Interestingly, a high proportion of Philippines tourist arrivals come from outside the region.

Singapore is a major hub for regional and intercontinental airline services. In 2007, 3.7 million out of a total of 10 million visitors to Singapore came from ASEAN countries, mainly from Malaysia, Indonesia, and Thailand (Table 5, page 35).⁵

The densest regional traffic flows are between the major metropolitan centers, notably Singapore–Bangkok, Singapore–Jakarta, Bangkok–Kuala Lumpur, and Kuala Lumpur–Jakarta. The relative importance of intra-ASEAN traffic, as a proportion of total airline traffic, varies between aSEA countries. For example, intra-ASEAN traffic accounts for 51% of total international airline traffic at Brunei International Airport (BIA), 60% at Jakarta’s Soekarno-Hatta Airport and 40% at Kuala Lumpur International Airport.

Regional airports also handle substantial passenger numbers. For example, within Malaysia Kota Kinabalu International Airport handled 4 million passengers in 2006 (3.3 million in 2003); Kuching International Airport, 3.2 million passengers in 2006 (2.9 million in 2003); while Penang handled 3.1 million in 2006 (2.3 million in 2003).⁶

4.2.2 Demand for Airline Services in Less-Developed Regions

Demand for passenger and freight services between the less-developed regions of aSEA, including the provinces forming the BIMP-EAGA and the IMT-GT as well as services between PNG and Timor-Leste and the ASEAN members of aSEA, is usually insufficient to support frequent, scheduled airline services. In the absence of subsidization, passengers and freight from region A may have to fly to the nearest regional hub port to connect with flights for region B. This may involve substantially more flying and waiting time at the hub airport.

⁵ *Yearbook of Statistics Singapore* 2008. The statistics exclude brief visits by surface from Malaysia.

⁶ See www.malaysiaairports.com.

4.3 Demand for Air Freight Services

The demand for international air freight services in any given country will depend on the geographical source of the country's imports and the destination of its exports. Other things being equal, air freight will be used where the supplier and the market are relatively distant and unable to be serviced by road transport. Demand will also depend on the commodity composition of imports and exports. Air freight is competitive for products with a high value to weight ratio (e.g., electronics and information technology). As a general guide, products whose value exceeds \$20 per kilogram are considered air eligible. Products that have to be on the retailer's shelf within a few hours of growing or processing (cut flowers, crustaceans) and products that have a short product life cycle (high fashion garments) are usually shipped by air.

A range of products with a relatively high value to weight ratio are shipped on regional air services, sizable volumes of air cargo being moved on scheduled airline services operating between Singapore–Bangkok and Kuala Lumpur–Bangkok. The sector between Singapore–Kuala Lumpur is too short to attract a high volume of air freight. A high proportion of the freight between Singapore and Kuala Lumpur is likely to be carried by road.

As a manufacturing center and entrepôt port, Singapore's Changi Airport handles over 2 million tons of air freight annually. Imports arriving by air include perishable foodstuffs and high-value textiles and fashions. Most exports shipped by air are manufactures. Singapore accounts for about 40% of ASEAN exports of electronic products. While a high proportion of these exports are shipped in containers by sea, higher-value products are typically air freighted. Similarly, Singapore accounts for 45% of ASEAN exports of information and communication technology products. The high value of many of these products (typically varying between \$10–150 per kg) suggests that many are air freighted.⁷

While KLIA handled 677,000 tons of air freight in 2006, Malaysian regional airports handled significantly lower volumes. For example, Penang handled 226,000 tons of air freight in 2006, Kota Kinabalu 36,000 tons, and Kuching 30,000 tons. The relatively low volume of air cargo handled by West Malaysian regional airports reflects competition from rail and road transport across the land borders between Malaysia–Singapore and Malaysia–Thailand. Anecdotal evidence suggests that the bulk of the substantial two-way trade in electronics and information and communication technology equipment between Singapore and Malaysia is carried by road.⁸

⁷ We note that over 70% of Singapore information and communication technology (ICT) products are exported to Malaysia. Regrettably no statistics relate to the transport mode used in this trade. We suspect that a high proportion of ICT exports from Singapore to Malaysia (and vice versa) is handled by road transport.

⁸ No statistical data is available on the modes of transport used. Our discussion of the movement of specific "priority products" draws on Meyrick/PDP, Promoting Efficient and Competitive Intra-ASEAN Shipping Services, Final Report.

Indonesia is the most important regional producer of textiles and garments, accounting for about 26% of regional supply. Exports are widely distributed, with Malaysia (9%) and Singapore (6%) the principal regional destinations. While most textile and garment exports are handled by container shipping, high-end fashions are freighted by air. Other exports using air freight include high-value seafood products (crustaceans).

In 2002, 2.5% of Philippine exports by volume (72% by value) moved by air. Electronics and related products accounted for approximately 50% of total shipments by air. The major markets for air freighted products were the US; Japan; Netherlands; Republic of Korea; Taipei, China; and Singapore.

In 2002, Brunei's combined inbound and outbound cargo totaled 31.4 million kg. The growth of air cargo through BIA averaged 27% per year for 1997–2002. BIA acts as a transshipment point for high-value air cargo (like cellular phones) and perishable commodities (like prawns from Kota Kinabalu to Hong Kong, China).

In PNG the demand for air freight is limited. Commodities exported by PNG, including oil and other mineral products, are carried by ship. Australia is the primary destination for PNG exports (30.1% of the total by value). Other destinations include Japan (8.1%) and the People's Republic of China (5.7%). The aSEA region is not a major customer for PNG exports. PNG's merchandise imports include industrial and agri-business products, food and beverages, and household wares. Australia is PNG's major supplier of imports (52.3%). Other sources include Singapore (12.6%) and Japan (5.9%). High-value commodities from Australia and Singapore are likely to be air freighted. Occasional air freight charters carrying tuna and other maritime products operate to Japan. More typically such produce is hubbed over Brisbane.

Since a high proportion of aSEA's air freight is lifted in the cargo holds of passenger aircraft, a close relationship exists between trends in the airline passenger services and trends in the provision of air freight capacity.

5. Supply of Airline Services

5.1 Long-Distance (Intercontinental) Services

Long distance (Tier One) services, operated by major international airlines such as Singapore Airlines, Malaysian Airlines, Thai Airways, and Emirates link regional hub airports (Singapore, Kuala Lumpur, and Bangkok) with major destinations in Europe, North America, East Asia, and Oceania. However, the bilateral bargaining underpinning ASAs between country A and country B ensures that airlines from every sovereign country have an opportunity to offer international flights to and from their home country. As a result, airlines such as Royal Brunei, Philippines Air Lines, and Garuda Indonesia also operate international services to and from their country of origin. Typically, such airlines offer a more limited range of intercontinental services than the major international airlines.

5.2 Regional Services

Table 6 (page 36) provides an overview of airline connectivity between aSEA countries. The table lists the number of city pairs connected by scheduled airline services. The countries with the largest number of connections between city pairs are Malaysia and Indonesia. Singapore appears to have excellent connections with the region as a whole, while Thailand also has strong regional connections. At the other end of the scale, PNG has limited airline connectivity with Singapore, Malaysia, and the Philippines, while Timor-Leste is connected only to Indonesia and Singapore.

It was found that more than one airline may offer services between a particular city pair. Thus Table 6 should be read in conjunction with Table 7 (page 37). The latter suggests that the major city pairs are served by between two to five airlines. Typically two of the airlines are national carriers, competing against one or more low-cost airlines.

5.3 Airline Services to and from Less-Developed Regions

Many Asian countries, including the major aSEA economies, have successfully adopted export-oriented growth strategies enabling them to take advantage of the liberalized world trading system. However, the benefits of such economic growth have not always been shared equally between the regions of countries such as Indonesia, the Philippines, and Thailand. Transport links between less-developed regions are often weak or nonexistent. The fact that demand for regional air and shipping services in the past has been relatively thin appears to have discouraged entrepreneurs from opening new routes or purchasing new equipment.

For example, air connectivity between the regions comprising BIMP-EAGA has been notoriously poor. Before 2006, a passenger wishing to fly from Bandar Seri Bagawan (Brunei) to Pontianak (Indonesia) had to fly via Kota Kinabalu and Kuching, involving, sometimes lengthy stopovers at transfer points. Demand for flights between subregional centers was thin and the problem was exacerbated by the employment of inappropriate aircraft types by some airlines.

In 2006, member governments signed a memorandum of understanding (MOU) designed to expand and strengthen air services within BIMP-EAGA. Under the MOU, each member country agreed to allow several carriers to operate on given routes. The agreement also provided for the full exchange of third and fourth freedom traffic rights, without any restrictions on capacity, frequency, and aircraft type. Further liberalization took place in 1999 and 2000. Brunei and Indonesia granted full fifth freedom rights in 1999 (Malaysia already followed such a policy), while the Philippines granted full fifth freedom traffic rights within BIMP-EAGA to airlines designated by the participating countries. Fifth freedom traffic rights allow an air carrier domiciled in a member country to pick up traffic in another BIMP-EAGA member country and carry it to a third member country as part of a service to and from the home country of the airline. For example, a Malaysian Airlines flight could fly from Kota Kinabalu to Bandar Seri Bagawan, pick up Brunei originating traffic, and carry it to Pontianak

in Indonesia. Fifth freedom rights enable airlines greater freedom and flexibility in planning networks in regions in which individual routes have thin traffic flows, potentially enhancing competition between airlines. In the example above, Malaysian Airlines could find itself competing against Royal Brunei Airlines and Indonesian carriers.

Originally, each BIMP-EAGA transport minister designated two entry points to be granted fifth freedom rights.⁹ The airports designated were Banda Seri Bagawan in Brunei, Balikpapan and Pontianak in Indonesia, Kota Kinabalu and Kuching in Malaysia, and Davao and Zamboanga City in the Philippines. Fifth freedom rights were granted to other airports in 2007: Manado and Tarakan in Indonesia, Labuan and Miri in Malaysia, and Puerto Princesa and General Santos City in the Philippines.

The adoption of fifth freedom rights offers a partial solution to the region's aviation problems. It is encouraging to note that new entrants have begun services and airlines have introduced turboprop rather than jet aircraft. For example, Asian Spirit—a Philippine domestic carrier¹⁰—began flying the Zamboanga–Sandakan and Zamboanga–Jolo routes in May 2007. Similarly, Malaysian Airlines wholly owned subsidiary Firefly commenced services to and from destinations in East Malaysia and Indonesia in 2007, initially with a fleet of Fokker 50 turboprops.

Air services within the IMT-GT subregion are also considered to offer inadequate connectivity. For example, the lack of a direct service between Hat Yai in southern Thailand and Medan and Banda Aceh in Sumatra (Songkhla–Penang–Medan Corridor) inhibit the growth of trade and tourism.

New entrants offer the promise of improved airline services. For example, in 2007 the Malaysian Airways owned subsidiary Firefly, operating from a base in Penang, began operating 72-seat Fokker propjet aircraft on routes such as Penang–Phuket and Penang–Koh Samui.

See Table 9 on international aviation freedom of the air rights.

5.4 Cabotage

In general, the domestic aviation markets of aSEA countries are reserved for airlines owned by citizens of the country in question. However, it is noted that several countries in the aSEA region have deregulated domestic aviation. For example, Indonesia deregulated domestic aviation in 1998. Since deregulation the sector has attracted a number of new entrants. Similarly, Thailand allows open access on all domestic routes and private carriers are free to compete with Thai Airways. The Philippines has also liberalized its domestic aviation

⁹ We note that Brunei has only one airport.

¹⁰ Asian Spirit has changed hands and been renamed Zest Airways.

market. Entry and exit is subject to policy laid out in Executive Order 219 (1995). This executive order envisages the progressive liberalization of the aviation industry in general.

5.5 Airline Ownership

Until recently, national carriers played a pivotal role in the aSEA region. The largest of these carriers—Singapore Airlines, Thai Airways, and Malaysian Airlines—operate a web of intra-ASEAN services and extensive networks linking Southeast Asia with Europe, the Middle East, Australasia, and North America. The dominance of these carriers appears to be under threat as aviation markets are deregulated and competition intensifies.

Singapore Airlines is the largest regional airline and the world's second-largest carrier by market value.¹¹ While Singapore Airlines is quoted on the Singapore Stock Exchange, majority ownership is held by the Singapore Government (56.83%) operating through Temasek Holdings. There are no current proposals for further privatization. Thai Airways is also majority (92%) owned by government, although further privatization is envisaged. Garuda Indonesian Airways was reorganized in 1998 and there are plans to privatize the airline. The Philippines' national carrier Philippines Airways Ltd (PAL) was privatized in 1992. However, following the 1997 Asian financial crisis, PAL was declared bankrupt and forced into reconstruction. Royal Brunei Airlines is an independent corporation wholly owned by the Government of Brunei Darussalam.

Private sector carriers compete with government-owned airlines in a number of ASEAN countries. For example, Cebu Pacific, Zest Airways, and Southeast Asian Airlines compete with PAL in the Philippines domestic market. Similarly, Andaman Airways, Bangkok Air, Orient Air, PB Air, and Phuket Air compete with Thai Airways.

The international airline industry is currently experiencing a period of merger and acquisition. Consolidation has taken a variety of forms. For example, Air France and KLM Royal Dutch Airlines merged in 2006 through the formation of a new holding company. Lufthansa, having successfully acquired Swiss International Airlines 3 years ago, is buying a controlling stake in Britain's BMI (formerly British Midland) and is also bidding for a minority stake in Austrian Airlines. In turn, Singapore Airlines formed a global alliance with Virgin Atlantic in 1999, with SIA taking a 49% shareholding in Virgin Atlantic. The partnership enables the carriers to code share, as well as share airport lounges and frequent flyer programs and offer joint round-the-world fares. Such industry consolidation appears to be driven by liberalization of aviation markets, a relaxation of regulations relating to cross-border investments in airlines, as well as the desire of governments to reduce their exposure to the aviation sector. Aviation industry experts argue that the industry is likely to experience further consolidation over the next few years.

aSEA carriers appear likely to be affected by industry consolidation. The strongest of the aSEA national carriers—Singapore Airlines, Malaysia Airlines, and Thai Airways—may join the race to consolidate. Weaker carriers may find survival difficult in this new environment.

¹¹ "Singapore Airlines rocked by recession," *Australian*, 15 May 2009.

5.6 Code Sharing

Under a code-sharing arrangement, an airline provides seats to a code-share partner(s), which are then marketed under the partner's name. Code sharing allows airlines to offer more frequent services than would be possible if their own aircraft operated all flights. It also enables airlines to serve a market without having to operate their own aircraft. The most common types of code sharing are "block space" and "free flow." Under a block-space agreement, the marketing carrier takes an agreed number of seats on designated flights for an agreed price and resells them, as if they were its own seats. The risk is transferred from the operating carrier to the marketing carrier. Under a free-flow arrangement there is no specific allocation of seats. The marketing carrier sells, however, many seats that it can. The risk remains with the operating carrier but it is alleviated by the marketing efforts of the nonoperating carrier.

5.7 Low-Cost Airlines

Substantial changes are occurring in regional aviation markets as a result of the entry of low-cost carriers. The first mover in the aSEA region was the Malaysian-based Air Asia, established in 2001 to serve the Malaysian domestic market. In 2003, Air Asia began services to Bangkok and services to other regional destinations followed. By 2007 the airline was carrying 7.7 million passengers. Its long-haul counterpart—Air Asia X—began services to the People's Republic of China and Australia in 2007 and London in March 2009.

The number of low-cost airlines has grown rapidly over the past 5 years. Based in Singapore, Tiger Airways, Jetstar Asia, and Valuair compete in regional markets. Tiger Airways, in which Singapore Airlines has a 49% stake, was launched in 2004. Similarly, Qantas set up Jetstar Asia by creating a joint venture structure with Singaporean investors. Jetstar Asia later acquired the Singaporean low-cost operator Valuair.

Thailand's low-cost operators include Nok Air and One Two Go. The Malaysian low-cost carrier AirAsia also competes in the Thai market through its Thai AirAsia joint venture with Asia Aviation Co. Ltd. The Government of Thailand lifted foreign ownership limits from 35% to 49% to allow AirAsia to enter the market. Indonesian low-cost carriers include Mandala Airlines, Batavia Air, and Lion Air. These airlines compete with Indonesian AirAsia, a joint venture between Malaysia's AirAsia and local Indonesian investors. In the Philippines, Zest Airways competes with SEA Air, a Philippine domestic carrier that has entered into a commercial and operational joint venture with Tiger Airways. The agreement will allow Tiger's aircraft to operate in Philippine domestic and international markets.

The low-cost carrier business model is based on

- Relatively narrow regional coverage (e.g., Southeast Asia), eliminating the need to pay high overseas allowances to crew;
- A standardized fleet, usually of one type of aircraft, reducing crew training, maintenance and repair costs;

- Fast turnaround and intensive use of aircraft, often using less-congested secondary airports;
- Higher seat density;
- Minimal cabin service;
- Extensive use of outsourcing; and
- Booking through the internet, saving travel agents' commission.¹²

As a consequence of the growth of low-cost carriers, some routes in the intra-aSEA airline market are changing rapidly. Table 7 suggests that low-cost carriers have already had a significant impact in reducing fares across the aSEA region. Table 8 (page 38), based on research by Solis and Rodolfo, suggests that greater competition led to a substantial fall in airline revenue per seat-kilometer over 2003–2008.

Entry or threat of entry by low-cost (and low-priced) airlines is disturbing the competitive equilibrium across the region, threatening incumbent airlines and forcing them to adopt new strategies. The growth of low-cost carriers will introduce competition to existing routes whose growth has been inhibited by full-service airlines seeking to maintain high yields. Greater competition will also encourage both low-cost carriers and incumbent airlines to develop new routes, notably those linking secondary hubs. In the medium to long run, these trends will substantially improve air connectivity in the aSEA region.

5.8 Growth in Size and Range of Commercial Aircraft

The introduction of new types of aircraft (B777, B787, A340, A380), including aircraft such as the A380 with greatly increased carrying capacity, are likely to reinforce the dominance of regional hubs such as Singapore and Bangkok. Other things being equal, direct international flights from regional airports (Penang, Kota Kinabalu, Brunei) are likely to be replaced by intensive services to and from the nearest hub airport.

However, the ability of new and more fuel-efficient planes to carry commercial payloads further creates a potential counter-tendency. Aircraft such as the B777 and A380 are able to fly long distances without refueling, enabling them to overfly existing hubs. For example, new generation aircraft can fly directly from Australia to the Middle East, cutting out the traditional stopovers in Singapore, Bangkok, and Kuala Lumpur. It is unclear at this time whether Southeast Asian aviation hubs will experience declining demand as a result of the introduction of more fuel-efficient aircraft types.

¹² L. Heracleous et al. 2009. *Flying High in a Competitive Industry*. Singapore: McGraw-Hill., p.25–26.

5.9 Charter Services

In general, aSEA countries have adopted relatively liberal policies toward charter flights. For example, Brunei Darussalam views charter flights as a valuable supplement to passenger or freight services during times of peak seasonal or temporary demand. Approved charter services include pilgrimage flights to Jeddah. The Philippines views charter flights as a valuable supplement to scheduled services at times of peak tourist demand, especially in the case of the more remote tourist destinations.

Indonesia liberalized its stance relating to charter flights in 1996, opening up all its gateway airports to charter flights. Similarly, Malaysia has a liberal approach to charter applications, readily approving the application of operators, while Thailand allows any charter to any international market. By comparison, Singapore sounds a more cautionary note. Although Singapore has a moderately liberal approach to air charters, they are relatively uncommon. Approvals for charters, which do not compete with scheduled services, can be obtained freely, though the approval process is said to be relatively slow.¹³

5.10 Air Freight Services

As mentioned earlier, a close relationship exists between trends in the airline passenger services and trends in air freight. Put in another way, the volume of air freight has tended to expand *pari passu* with the growth of scheduled passenger services. Where the volume of air freight exceeds the capacity of scheduled passenger services or where shippers offer large volumes of perishable or other cargoes capable of paying a sustainable freight rate, specialist air cargo operators may find it worthwhile to introduce dedicated freight aircraft. In general, countries in aSEA have adopted liberal air freight policies. Several aSEA countries have entered into bilateral or multilateral open skies agreements relating to air freight. For example, Malaysia has open skies air cargo agreements with Germany and the Netherlands, while under a 1995 agreement, airlines have unlimited air freight rights between the Philippines and the US.

Indonesia and Thailand also follow liberal policies toward air freight, while Brunei Darussalam allows dedicated air freight operators to serve its market. As might be expected given its role as a freight hub, Singapore has adopted a liberal policy toward air freight.

¹³ See Monash International Pty. Ltd. 2004. *Preparing ASEAN for Open Sky*, Final Report, Country Report – Singapore.

6. Aviation Infrastructure: Capabilities and Constraints

Airlines depend on the services provided by aviation-related infrastructure, such as runways, hard stand, passenger and freight terminals, and cargo-handling equipment, as well as other forms of infrastructure such as telecommunications and information systems. While high quality aviation infrastructure can give an airport a competitive advantage (e.g., Singapore), the lack of appropriate infrastructure or the inefficient operation of existing infrastructure may act as a constraint on the development of air transport (e.g., Pontianak, Dili).

6.1 Major Hub Airports

The region's major hub airports (Singapore, Kuala Lumpur, and Bangkok) operate efficiently by world standards, invest heavily to ensure their facilities are adequate, and compete strongly for customers.

Singapore's Changi Airport is the region's major hub, served by airlines operating intercontinental, intra-Asian, and intra-aSEA services. Following a S\$240 million upgrade to Terminal 2 in 2006, the new S\$2.75 billion Terminal 3 was opened in January 2008, increasing Changi's capacity to 64 million passengers a year. A budget terminal, with capacity for 2.7 million passengers a year, opened in March 2006. The airport's operational efficiency is generally considered to be world class, with the Government of Singapore and the airport authority seeking to upgrade facilities as and when necessary to preserve Singapore's competitive advantage.¹⁴ The airport's charges are among the lowest in Asia.

Over the past 15 years, Malaysia has been aggressively developing the infrastructure necessary to support its relatively high rate of economic growth. The government has set out to develop KLIA as a regional hub for passengers and cargo. The need for KLIA arose as a result of the 14%–15% growth of passenger traffic through the former Subang International Airport in the early 1990s. By 1995, Subang had reached its design capacity of 5,500 passenger movements an hour. The first stage of KLIA was completed in June 1998 giving the airport the capacity to handle 25 million passengers and 1.2 million tons of cargo a year. A low-cost carrier terminal, constructed in 2005, has the capacity to handle 10 million passengers a year. In 2008 the Government of Malaysia announced its intention to construct a new low-cost carrier terminal by 2012 with a planned capacity of 25 million

¹⁴ Singapore faces competition from Bangkok and Kuala Lumpur in its role as a major regional hub. Locally, Senai Airport, located across the causeway in the Malaysian state of Johor and accessible by many residents in the northern and western parts of Singapore Island, competes for regional short-haul traffic.

passengers a year. KLIA has sufficient land to build facilities capable of handling 100 million passengers and 5 million tons of cargo annually.

Thailand's favorable geographic position and liberal aviation policies have enabled the development of one of Asia's most important aviation hubs at Bangkok, despite the infrastructural limitations of the former Don Muang Airport. Don Muang suffered from a seriously inadequate terminal as well as being slot constrained during the airport's peak hours between 2200 and 0130. Thailand opened Suvarnabhumi International Airport in 2006, at a cost of \$3 billion and a capacity of 45 million passengers a year. A planned budget terminal will extend capacity by 17 million a year. Reportedly the airport will eventually cater for 100 million passengers and 3 million tons of air cargo a year.

In summary, the region's major hub airports (Changi Airport, KLIA, and Suvarnabhumi International Airport) are efficient by world standards, compete strongly to attract transit traffic, and invest heavily to maintain their competitive position.

6.2 Other Major Airports

The region's other major airports (including Brunei International Airport (BIA), Soekarno–Hatta Airport in Jakarta, and Ninoy Aquino International Airport in Manila) suffer in various ways when compared to the major hub airports. BIA is a relatively small airport with current capacity to handle 2.2 million passengers. While there are no current restrictions regarding landing or take-off slots, terminal and transfer facilities are said to be inadequate for the airport's projected growth. The government plans to develop BIA as a regional hub, focusing especially on the potential market within BIMP-EAGA. There are plans to lift terminal capacity in four stages, ultimately catering to 4.4 million passengers a year.¹⁵

Over 95% of the Philippines' international airline traffic is handled by the Ninoy Aquino International Airport (NAIA) in Manila. Although the airport has had no slot restrictions, until recently, NAIA was constrained by inadequate facilities for transit and transfer passengers. Such infrastructure constraints detracted from the Philippine Government's drive to become an Asian hub. While a new international terminal was built in 2003, its full operation was delayed for some years due to investigations into its contract, which granted monopoly rights for ground-handling and catering services to one of the partners in the build-operate-transfer contract.

¹⁵ The Government of Brunei Darussalam has encouraged private sector participation in developing the BIA through the granting of pioneer status. A company granted a pioneer certificate will be exempt from corporate tax for a period ranging from 2 to 5 years. Such companies will also be exempted from customs duty on imported machinery and equipment and raw materials. See www.brunet.bn/gov/dca/services.htm

In PNG, Jacksons Airport (Port Moresby) is the only airport regularly served by international carriers. It has two runways (2,750 meters [m] and 2,072 m in length), two passenger terminals (international and domestic), and one aircraft stand. The facilities are adequate to cater to the limited international flights currently operated but will need to be expanded should PNG economic growth accelerate in the future.

In Timor-Leste, Presidente Nicolau Lobato (Dili) International Airport is run by the Civil Aviation Division of the Ministry of Transport, Communication and Public Works. Facilities are said to be basic. The existing 1,850 meter runway, which was repaved in 2005, is capable of accommodating B727 and A319 aircraft. The government plans to begin work on a runway extension in 2009 to accommodate B757 and similar aircraft. The improvements will be funded by royalty income from oil and gas deposits.

6.3 Regional Airports

In some aSEA economies, deficiencies in regional aviation infrastructure act as a constraint on the efficient development of air services. For example, some regional airports in Indonesia are unable to accommodate aircraft types operated by foreign airlines (e.g., Pontianak) while others lack adequate terminal facilities (Medan). Runway length and width may also constrain air services. Investment in facilities is also required at secondary airports in the Philippines. Terminal facilities are said to be inadequate at the Davao International Airport where the opening of the new terminal has been delayed due to technical problems. Investment is also required at secondary gateways such as Clark and Laoag.

Similarly, a shortage of skilled management and labor may constrain the growth of the aviation industry. Airline operations rely on a range of highly skilled employees, such as experienced managers and information technology professionals. In some countries, these skills are in short supply. In particular, managers with experience of the aviation industry may not be readily available. This will hinder the development of airlines and aviation infrastructure. While these skills can be obtained from hiring staff from other countries, this can be expensive and it can erode the competitive base of the airlines.

Attempts are being made to improve the efficiency of regional airports by various aSEA governments. The Government of Malaysia is committed to improve the accessibility and services provided by regional airports such as Penang, Langkawi, Kuching, and Kota Kinabalu to support regional growth and development. Langkawi Airport (Kedah), serving a major holiday destination, has been recently redeveloped. The existing terminal has been extended and refurbished and a runway built capable of handling B747 aircraft. The airport is now able to handle 2.5 million passengers a year and has the ability to handle up to 1,000 passengers per hour in peak periods.

The ownership structure of Indonesian regional airports is being overhauled in an attempt to make them more efficient. Until recently, Indonesia's regional airports were operated by two state-owned enterprises: Angkasa Pura 1 managed airports in Eastern Indonesia while airports in Western Indonesia were managed by Angkasa Pura 2. The recent devolution of

power from the central to provincial governments has seen provincial governments take control of some regional airports. Privatization of some airports has also occurred.

In the Philippines, the government intends to divert traffic from Manila to regional airports such as Cebu, Davao, Subic, Clark, and Laoag by encouraging foreign airlines to provide services to these destinations. However, flights by foreign airlines to regional airports count toward their entitlements as set as in the relevant air service agreements (ASAs). An alternative policy might create additional traffic rights for airlines willing to fly to regional airports.

7. Aviation Policy: Pressures for Reform

Globally, aviation markets have significantly changed since the late 1980s. The industry, historically subject to close regulation, has benefited from market liberalization, privatization, and a relaxation of restrictive ownership rules. The recent emphasis on the benefits flowing from liberalization, especially for tourism and regional development, has encouraged policy makers to take a new, more open approach to aviation regulation. Deregulation has driven change in the Southeast Asian aviation industry since the 1990s.

7.1 Aviation Policy Objectives

National aviation policies reflect varying national objectives and differences in the resource endowments of individual aSEA countries. Not only do the objectives of aviation policy differ but the sophistication of the policies adopted and the ability to implement them effectively also differ across aSEA countries. In general, the more developed aSEA countries have clear policy objectives and well-developed policies for the aviation sector. For example, Singapore's aviation policy focuses on the promotion of Singapore as an aviation hub. Success depends on Singapore adopting liberal aviation policies to attract airlines to serve it rather than competing destinations. In contrast, PNG's rudimentary aviation policy merely attempts to ensure that the country has links to key trading partners.

Historically, international aviation has been a highly regulated industry. International agreement on the rights of airlines domiciled in country A to offer air services across the territories of countries B, C, and D was made necessary by the 1919 Paris Convention which gave complete and absolute sovereignty to each nation over the air space above its territory. Modern attempts to reach a multilateral agreement covering traffic rights date from the Chicago Conference of 1944. At Chicago the concept of "freedom" (or transit privilege) was defined as a key principle of air law. Essentially these freedoms (Table 8) are agreed limitations on the provision of international air services.

Since the 1980s, the international aviation industry has been partially deregulated. This is often referred to as a move toward "open sky," which may be pursued on a bilateral,

regional, or multilateral basis. Open sky policies usually incorporate multiple (rather than single) airline designation, removal of capacity controls on a given route(s), or the removal of price controls.¹⁶

7.2 Airline Ownership

Countries in aSEA differ in their policies regarding ownership and control. For example, an airline registered in Brunei Darussalam must be substantially owned and effectively controlled by Brunei interests, while Malaysia reserves 51% ownership for Malaysian nationals and the Philippine Constitution provides for 60% ownership by Filipinos and effective Filipino management and control.

Privately owned carriers compete with government-owned airlines in some aSEA economies, primarily on domestic and intra-ASEAN routes. For example, Malaysian-based Air Asia offers services to a number of Southeast and East Asian destinations. Similarly, Bangkok Air is active on routes to neighboring ASEAN countries. As noted above, low-cost carriers such as Air Asia, Jetstar Asia, and Valair have expanded their range of services since 2004.

7.3 Air Service Agreements

Bilateral arrangements, commonly referred to as air service agreements (ASAs), remain the most common form of airline regulation among aSEA states. Paralleling ASEAN initiatives to move toward open sky, the more developed ASEAN economies are entering into new ASAs having open sky characteristics. Malaysia has open skies agreements with the US; Taipei, China; New Zealand; Austria; Luxembourg; and Lebanon. Further, several countries have exchanged fifth freedom rights, while Thailand has granted extensive fifth freedom rights to encourage the development of an aviation hub at Bangkok.

There have been broader regional movements toward open sky, most notably the Multilateral Agreement on the Liberalization of International Air Transport (MALIAT) between Brunei Darussalam, Chile, New Zealand, Singapore, and the US. MALIAT entered into force in December 2001. The key features of the agreement are (i) open routes, (ii) open traffic rights, (iii) no capacity limits, (iv) multiple airline designation, and (v) code-sharing provisions. Aviation liberalization policies were also adopted in BIMP-EAGA and IMT-GT.

Whereas ASAs in the 1950s and 1960s typically designated a single airline from each participating country to serve a given route, more recent, liberalized ASAs allow multiple airline designation. For example, Brunei Darussalam allows either double or multiple designation where the other party agrees to reciprocal rights. Similarly, most active Indonesian ASAs allow for multiple designation of airlines.

¹⁶ B. Solis and C.L.S. Rodolfo. 2008. *ASEAN Community and Philippine Developments*. November.

Before 1990, bilateral ASAs usually specified which gateways or airports had to be used by airlines operating international routes. Recent liberalized ASAs permit airlines to choose the gateways they wish to serve. Some aSEA economies operate a multiple gateway policy. For example, most Indonesian ASAs include separate traffic rights to holiday gateways such as Denpasar (Bali), while airlines from nations signing open sky agreements with Malaysia are free to operate into any or all of the country's six international gateways. Other aSEA countries encourage foreign airlines to serve secondary gateways. For example, the Government of the Philippines encourages foreign airlines to call at Cebu and Davao to promote tourism.

7.4 Airline Cooperative Agreements

In general, the ASEAN members of aSEA allow their national airlines to join airline alliances. Singapore Airlines and Thai Airways are members of the Star Alliance. Similarly, a number of Brunei Darussalam's ASAs allow airline cooperative arrangements, including code sharing, while Malaysia and Indonesia have approved Malaysia Airlines and Garuda's third country code-sharing services to Australia, Germany, and the United Kingdom. PNG has allowed Qantas and Air New Guinea to enter into cooperative working arrangements on the Australia–PNG route. To date there has been no need for Timor-Leste to take a stance on airline cooperative agreements.

7.5 Air Freight and Air Charter Policies

ASEAN members of aSEA have adopted relatively liberal policies regarding air freight and the operation of air charters. Brunei Darussalam permits dedicated air freight services, while Malaysia has signed bilateral open skies cargo agreements with Germany and the Netherlands. Similarly, Brunei Darussalam values charter operations as a means of meeting seasonal or temporary demands for the carriage of passengers and freight (e.g., pilgrims to and from the Middle East). However, some countries such as the Philippines are concerned that charter flights may divert traffic away from scheduled airline services.

7.6 Toward Open Skies: ASEAN Initiatives

The relatively high rates of Asian economic growth in the 1990s, coupled with the prevailing philosophy favoring the liberalization of trade in goods and services, encouraged ASEAN governments to liberalize their domestic and international aviation sectors. However, ASEAN as an institution was a relatively late convert to the benefits of airline liberalization. While the ASEAN Framework Agreement on Services created opportunities to lower barriers to trade in services, the agreement did not include the aviation sector.

The ASEAN leaders' summit held in Bali in October 2003 agreed to accelerate trade liberalization in 11 priority sectors, 8 involving trade in goods and 3 concerning services. Air travel was selected as 1 of the 11 priority sectors. The commitment to the accelerated liberalization of the priority sectors was acknowledged in the ASEAN Framework Agreement for the Integration of the Priority Sectors (2004). Of relevance to this study, Article 10 (Logistics Services) of this agreement commits ASEAN governments to support transport

sector liberalization by strengthening intra-ASEAN maritime and shipping transport services, and by achieving better interconnectivity, interoperability, and intermodality with the national, regional, and international maritime and air transport gateways.

Sector road maps were prepared for each priority sector, the aviation road map being adopted by ASEAN member states in November 2004. Under the aviation road map, liberalization was to start in 2008. Separate agreements deal with international air freight and international passenger services. The liberalization process for air freight began with the 2002 MOU on air freight services. Under the MOU contracting parties agree to allow the official carriers of other contracting parties to provide international freight services. The MOU provides for the rights to fly across each other's territory without landing (first freedom traffic), as well as second, third, fourth, and fifth freedom rights within the region.¹⁷ At the 12th ASEAN Transport Ministers meeting in 2007, a protocol was adopted allowing national carriers to operate all-cargo services with a capacity limit of 250 tons weekly in each direction on a given route, with no limitations on frequency or aircraft type.¹⁸

Critics have noted that the ASEAN initiatives have been slow to gain traction. However, under the Multilateral Agreement on Air Services, contracting parties will extend second, third, fourth, and fifth freedom rights for passenger services to carriers of other contracting parties. Full liberalization of third and fourth freedom rights between ASEAN capital cities was introduced on 31 December 2008. This is to be followed by the full liberalization of fifth freedom traffic rights between ASEAN capital cities by 31 December 2010. At present, the declared ASEAN goal is full liberalization of international air services by 2015.

ASEAN members differ in their commitment to the Multilateral Agreement on Air Services. It seems likely that four countries—Brunei Darussalam, Malaysia, Singapore, and Thailand—will adopt full liberalization according to the above timetable. Other ASEAN members, notably Indonesia, continue to employ selective protectionist policies. For example, until recently Indonesia protected Garuda by refusing to allow Singapore-based low-cost carriers to offer services to its four main cities, including Jakarta.

Assuming that the momentum toward open sky policies is maintained within the aSEA region, some or all of the following policies are likely to be adopted over the next decade:

- liberalization of bilateral agreements and/or the broadening of subregional cooperation;
- the opening up of secondary gateways;
- a relaxation of ownership and investment rules;
- ending of noncompetitive code-sharing agreements;

¹⁷ The second freedom grants the right to stop in a country for refueling or maintenance on the way to another destination, without transferring passengers or cargo. Third and fourth freedom rights enable carriers to carry passengers and cargo between each other's territory, while fifth freedom rights allow connecting flights to a third country.

¹⁸ See ASEAN, Twelfth ASEAN Transport Ministers Meeting, Bangkok, 8 February 2007.

- liberalization of policy stance relating to aviation service markets (ground handling, freight forwarding, computer reservation systems); and
- agreements to liberalize aviation markets between aSEA states and the outside world.¹⁹

8. Conclusion

Despite the region's attempts at reform, aviation markets are subject to more detailed economic regulation than shipping markets and the regulation of the aviation industry acts to prevent adjustments taking place when external conditions change. In this light, policy recommendations in this paper will therefore focus on ways of creating the freedom necessary to develop competitive aviation markets. Ideally, governments should develop a regulatory regime conducive to the growth and development of an efficient aviation industry. This would imply the creation of more competitive aviation markets, encouraging the industry to be more responsive to changes in consumer needs and changing technology. In general, governments should consider moving toward open sky policies.

However, the term "open sky" is open to interpretation. It could imply the creation of a single aviation market across the aSEA region, analogous to the European aviation market. Given the differing objectives and constraints facing the various countries in aSEA, such a market might allow different rates of progress by individual countries. Alternatively, an open sky policy might allow freedom of route choice by aSEA domiciled airlines, while restricting the ability of non-aSEA airlines to serve intra-aSEA routes.

The movement toward open sky policies in the aSEA region is unlikely to take place in one dramatic "big bang." It is more likely to be a gradual process involving the liberalization of ASAs, a relaxation of ownership and investment rules, and a freeing up of regulations relating to aviation service markets. Hence, this paper suggests the following policy recommendations:

i) Further liberalize ASAs

This might take on any of the following forms:

Dual or Multiple Designation – Competition is limited when there are only two airlines on a given route, one from each country (single designation). One way to liberalize aviation markets is to allow two airlines from each country (dual designation) to operate on a route.

¹⁹ See B. Solis and C.L.S. Rodolfo, *ASEAN Aviation Community and Philippine Development*, November 2008.

Alternatively, all restrictions could be removed on the number of airlines serving a given route (multiple designation), allowing individual airlines themselves to determine whether there are profitable opportunities on the route in question.

Choice of Gateways – Most ASAs specify which airport gateways must be used by airlines operating international routes. Modest liberalization is possible by permitting airlines to choose which gateways they wish to use. The use of secondary gateways may relieve pressure on the main international airport(s). Where a secondary gateway serves tourist destinations, the tourist industry and regional development may benefit. The use of secondary gateways may be encouraged by ensuring that airlines serving regional airports do not incur a penalty so far as metropolitan access is concerned.

Abolition of Capacity Controls – Many aviation routes still have controls on the total allowable capacity on a route, and/or on the capacity to be offered by individual airlines. The type of aircraft to be used may also be specified. Typically, capacity controls involve the selection of a benchmark type of aircraft (e.g., B767). Allowable capacity on the route will then be measured in terms of the number of B767 flights per week. Such controls prevent effective competition between airlines. The removal of capacity controls is a common feature of open skies regimes.

Charter Flights – Charter flights are commonly used to promote tourism in Europe, the US, and Australia. The benefits and costs experienced by stakeholders helped them prepare for the deregulation of scheduled services. Many open skies agreements permit charter flights with restrictions to certain destinations.

Air Cargo – Most countries have a more flexible approach to air cargo than to passenger carriage. Cargo is less sensitive to “national identity” than passengers. Some countries have liberalized their cargo sectors first, de-linking air cargo from passenger services, removing restrictions on gateways, and lifting restrictions on third, fourth, and fifth freedom capacity.

ii) Relax Ownership and Investment Rules

Relaxation of ownership and investment rules could lead to a more competitive airline industry. Policy changes, which could lead to a more dynamic industry, include the privatization of government-owned airlines and the removal of barriers preventing foreign carriers offering services on international routes.

Privatization of National Carriers – The removal or minimization of direct government involvement in the ownership and operation of air services would lower barriers to change within the aviation industry and free up scarce capital for aviation infrastructure.

Barriers to Entry – Many ASAs contain clauses specifying the countries whose airlines are permitted to operate on a given route or routes. Thus, “nationality,” usually defined in terms of ownership and/or effective control, determines which airlines may offer services on designated routes. Such restrictions limit the ability of foreign airlines to invest in overseas

markets. While these requirements tend to become less onerous as open skies arrangements spread, some countries still impose rigorous ownership requirements. There are a number of ways in which onerous nationality requirements might be liberalized. For example, countries in the aSEA region might agree that any airline majority owned or effectively controlled by nationals of any aSEA country would be free to operate on any intra-aSEA route.

iii) Liberalize Regulations relating to Aviation Service Markets

Historically, a number of aSEA countries have put in place restrictions relating to the provision of ground handling and other aviation-related services. For example, the build-operate-transfer contract for the new Terminal 3 in Manila required airlines to use the services of monopoly suppliers of catering and ground-handling services. Under a liberalized regime, airlines should be free to choose their own operators. aSEA countries might allow firms from other aSEA countries to handle these services in their airports. Alternatively, ground-handling services might be opened to any operator.

Opening up the market for ground-handling services to greater competition will lead to lower ground-handling charges, hence, lower operating costs for airlines, and improved quality of handling services. Consumers should benefit from better quality of services if competition ensures that airlines pass on the part of the cost savings to them.

Removal of other restrictions relating to aviation service markets (e.g., restrictions on the employment of foreign airline personnel, rules relating to the remittance of earnings, and restrictions regarding computer reservation systems) will have a similar effect. If decisions are based on commercial rather than political considerations, airlines will become more efficient in their operations in all parts of their network. Consumers will benefit from better quality of services.

iv) End Noncompetitive Code-Sharing Arrangements

The danger of code sharing, when there are only two carriers on a route, is that competition is diminished. There is a strong case for outlawing code sharing on grounds that it diminishes competition. However, code sharing between carriers may be more acceptable on routes in which there is extensive fifth freedom competition (e.g., Bangkok – Singapore).

Deepen Subregional Cooperation (BIMP-EAGA, IMT-GT)

Air connectivity in the BIMP-EAGA has been notoriously poor. While the BIMP-EAGA aviation agreements relate to regional, secondary, and tertiary aviation services, they have been perceived as being relatively ineffective.

The full exchange of third and fourth freedom rights as well as the general adoption of fifth freedom rights offers a partial solution to the region's aviation problems. Fifth freedom rights allow an air carrier domiciled in a member country to pick up traffic in another BIMP-EAGA

member country and carry it to a third member country as part of a service to and from the home country of the airline. It is encouraging to note that new entrants have begun services and airlines have introduced turboprop rather than jet aircraft.

Given the thin traffic on BIMP-EAGA routes, code sharing or even joint service provision may be necessary to create the required connectivity. Third-country code sharing would seem to be appropriate to build initial linkages. As and when traffic has built to an appropriate level (most probably a daily service on a given route), any increase in service levels should be allocated in a way that reduces the anticompetitive element inherent in code shares and joint services.

v) Consider Modifying or Abolishing Cabotage Restrictions

As noted above, the domestic aviation markets of aSEA countries are generally reserved for airlines domiciled in the home state, although several countries have deregulated their domestic aviation markets. However, foreign investors are already able to invest in domestic aviation in certain aSEA countries. For example, foreign participation is allowed in the Philippines but is limited by the 60% domestic–40% foreign participation provision of the Constitution.

It was found that some open skies agreements permit airlines from other countries to operate domestic services. For example, under current arrangements, the Singapore-owned Tiger Airways is allowed to operate domestic services in Australia.²⁰ However, many open skies agreement do not allow entry in domestic aviation markets.

Potential gains are available if foreign airlines are permitted to operate domestically. Opening up entry in this way could lead to greater competition, better connections between domestic and foreign routes, and lower fares. Tourism would benefit from seamless travel. However, there are potential drawbacks. Opening up domestic routes to foreign carriers might undermine the viability of domestic carriers.

vi) Subsidies Services on “Thin” Regional and/or Domestic Routes

While the primary role of government is to facilitate aviation outcomes that are commercially driven or are likely to prove commercially viable in the long run, there may be cases in which government intervention is necessary to provide a service to regional communities. In cases in which governments wish to ensure that there are adequate airline services on long, thin routes (including regional and domestic), which are marginal or unlikely to be economically self-sustaining in the long run, there is a case for subsidizing airlines.

²⁰ It was found that while Tiger Airways is not allowed to fly international routes from a base in Australia, it is allowed (as a Singaporean airline) to fly to and from Australia from its Singapore base. This leads to the bizarre situation in which Tiger Airways can fly a Singapore-based aircraft from, for example, the Singapore–Perth–Singapore route but cannot fly a Perth-based aircraft for the Perth–Singapore–Perth route.

Subsidy payments should be tied to clearly defined objectives and should be justified within the framework of a comprehensive transport policy. They should be transparent and subject to regular review. There has been a tendency for governments to seek value for taxpayer funds by putting out subsidized service to tender. Wherever practical, subsidies should be awarded based on an open and competitive tendering process. Tender periods should be of limited duration.

vii) Create Regional Sinking Fund to Finance Airport Improvements

While the region's major international airports operate efficiently by world standards and some regional airports operate relatively efficiently, many regional and most local airports suffer from lack of funding and facilities. Since the benefits of aviation liberalization are dependent on the existence of efficient infrastructure—including airports and regulatory systems—there is a case for providing national or regional revolving funds to finance improvements to local and regional airports.

Liberalization of aviation markets can create direct and indirect benefits and costs. The direct benefits and costs from liberalization will be experienced by

- passengers, who should gain from lower fares and better services;
- airlines, which will lose out from lower fares but benefit from lower costs and access to new markets; and
- the tourism sector, which will gain from the stimulus provided by lower airfares and better services. But outbound tourism will also increase in the more developed aSEA economies and some countries may lose from this effect.

aSEA countries are expected to experience a range of indirect impacts, which may be positive or negative, depending on the circumstances of a particular country. Indirect impacts include (i) effects on government revenue, (ii) foreign exchange effects, (iii) employment effects, (iv) and effects flowing from improvements to business communications. The scale of potential impacts depend on the circumstances facing individual countries, including the relative size of inbound and outbound tourism and the market shares on key routes held by its airlines.

Substantial direct costs would be incurred in upgrading infrastructure and providing airline services, especially where regional airport facilities require substantial investment and where many islands require improved airline connectivity (as in the case of BIMP-EAGA).

Further, improving airline connectivity between less-developed regions appears likely to incur substantial indirect costs, especially in the short run. Subsidies, tax concessions, and other incentives may be necessary to persuade airlines to offer the desired services. It was noted that subsidies make it difficult for airlines to compete on equal terms. It is important that subsidies be transparent and allocated on a basis, which does not distort competition.

In moving toward liberalized aviation markets, there is a risk that airlines engage in anticompetitive behavior, such as predatory pricing and collusion. Given that competition policy is in its infancy in most ASEAN countries, an acceptable alternative approach might be to develop an ASEAN code of conduct for airlines.

Financial instability,, which currently affects many ASEAN airlines, is a problem. In part, this is the result of intensifying competition and, hence, thin margins in a high-operating cost industry. Some ASEAN carriers (e.g., Garuda and Philippine Airlines) simply lack the resources to compete effectively with the region's dominant carriers—Singapore Airlines, Malaysia Airlines, and Thai Airways. Where undercapitalized airlines have been privatized, they have proved vulnerable to external shocks such as oil price increases and sharp falls in passenger and cargo volumes. For example, during the Asian financial crisis of 1997, Garuda, Malaysia Airlines, and Philippines Airlines had to be rescued by their respective governments. While there are no easy solutions to this problem, a staged process of liberalization would give airlines time to address their financial problems.

The availability of managerial and technical skills differs widely among the countries of ASEAN. Cross-country investments, strategic alliances, and cooperation will help reduce differences.

As Christopher Findlay has noted,²¹ policy makers must necessarily be concerned with the sequencing of aviation reforms. The aim should be to introduce reforms in such a way that their impact is cumulative and self-reinforcing: successful reform building on the reform platform already established. We note that changes in “market access” (i.e., rules relating to entry and capacity) that have already occurred in the aSEA region are creating pressures for further change. The opening of markets has created the need for more capital to purchase the planes and ground equipment to service them. The need for more capital, in turn, leads to pressure for changes in ownership rules. Aviation reform within the aSEA region is also being driven by events in the market place and by regulatory reform in the rest of the world. The end result should be an aviation industry that provides improved connectivity throughout the aSEA region as well as being more responsive to market needs.

²¹ Christopher Findlay, *Strategic Directions for ASEAN Airlines in a Globalizing World: Overview*, REPSF Project No. 04/008, Final Report, August 2005, p.3.

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Table 1: aSEA Economic Indicators

Country	Population (million) (2007)	GDP per Capita (\$) (2008)	Exports (% GDP) (2008)
Brunei Darussalam	0.4	31,879	62.5
Indonesia	224.9	1,925	30.1
Malaysia	26.8	6,956	109.6
Philippines	88.6	1,626	39.7
Singapore	4.6	35,163	230.9
Papua New Guinea	6.1	991	78.8
Thailand	65.7	3,732	73.4
Timor-Leste	1.0	440	2.2

Source: Department of Foreign Affairs and Trade (DFAT) Australia, Country Fact Sheets.

Table 2: Type of Air Services available in the aSEA Region

Type	Description
Tier One	Intercontinental or long-distance airline services operated by major international airlines (Singapore Airlines, Thai International, Qantas, Emirates) using large aircraft (B747, B777, A340, A380). Such services call at regional hub airports (Singapore, Bangkok, and Kuala Lumpur). Smaller aSEA economies do not generate sufficient traffic to warrant calls by Tier One Services, nor do many regional airports have the ability to handle large jet aircraft.
Tier Two	Regional routes that generate sufficient traffic to warrant the use of medium size jets (A320, B757). Such services may link two or more aSEA economies (e.g., Singapore–East Malaysia–Brunei Darussalam). Tier Two services may funnel traffic to and from regional hub airports. Alternatively, they may link one or more airports within aSEA with economies outside the aSEA region (e.g., Singapore–Ho Chi Minh City).
Tier Three	Intraregional low volume and/or low-frequency routes best suited to turboprop rather than jet aircraft. Services between regional airports of BIMP-EAGA member economies typically fall into this category.
Tier Four	Domestic aviation services within aSEA economies (e.g., services between East and West Malaysia or between Kalimantan and Java). Given the emphasis in this study is on international links, domestic airline services will only be covered in so far as they impinge on international services.

Table 2: Singapore – Air Passenger Arrivals and Departures by Region of Embarkation and Disembarkation ('000 passengers)

Arrivals						
Region	2002	2003	2004	2005	2006	2007
Southeast Asia	5,223	4,458	5,417	5,732	6,232	6,250
Northeast Asia	3,324	2,520	3,542	3,966	4,332	4,670
South Asia	885	859	1,053	1,160	1,382	1,585
West Asia	179	127	201	213	259	293
Oceania	1,873	1,743	1,955	2,069	2,141	2,216
Europe	1,694	1,508	1,667	1,703	1,781	1,788
North America	310	259	372	389	408	403
Other	139	114	131	132	143	165
TOTAL	13,727	11,588	14,336	15,364	16,678	17,640
Departures						
Region	2002	2003	2004	2005	2006	2007
Southeast Asia	5,140	4,347	5,314	5,649	6,125	6,413
Northeast Asia	3,378	2,550	3,557	3,978	4,365	4,670
South Asia	871	822	1,024	1,124	1,353	1,554
West Asia	176	125	196	221	273	300
Oceania	1,943	1,824	2,039	2,153	2,262	2,293
Europe	1,664	1,494	1,629	1,687	1,766	1,781
North America	334	273	376	402	404	407
Other	142	120	134	141	143	164
TOTAL	13,647	11,555	14,270	15,536	16,690	17,582

Note: Figures exclude transit passengers.

Source: Singapore Yearbook of Statistics.

Table 3: Tourist Arrivals in Selected ASEAN Countries, 2006 and 2007
('000 arrivals)

Country	2006			2007		
	Intra-ASEAN	Extra-ASEAN	Total	Intra-ASEAN	Extra-ASEAN	Total
Brunei Darussalam	69	89	158	85	94	179
Indonesia	2,307	2,564	4,871	1,321	2,790	4,111
Malaysia	13,857	4,615	18,472	14,164	4,217	18,381
Philippines	203	2,485	2,688	236	2,856	3,092
Singapore	3,555	6,196	9,752	3,692	6,485	10,177
Thailand	3,556	10,266	13,822	2,472	7,934	10,406

Source: ASEAN Tourism Database.

**Table 4: Singapore Air Passengers To and From Selected aSEA Countries
('000 passengers)**

Arrivals						
Country	2002	2003	2004	2005	2006	2007
Brunei Darussalam	124	100	102	93	94	98
Indonesia	1,515	1,330	1,595	1,695	1,781	1,900
Malaysia	1,456	1,079	1,211	1,191	1,212	1,235
Philippines	367	327	402	483	590	663
Thailand	1,560	1,343	1,727	1,792	1,951	1,895
Southeast Asia	5,223	4,458	5,417	5,732	6,232	6,520
Departures						
Country	2002	2003	2004	2005	2006	2007
Brunei Darussalam	122	98	96	92	92	95
Indonesia	1,574	1,382	1,676	1,755	1,839	1,956
Malaysia	1,369	1,034	1,162	1,168	1,209	1,249
Philippines	366	318	390	461	561	622
Thailand	1,409	1,246	1,616	1,706	1,836	1,786
Southeast Asia	5,140	4,347	5,314	5,649	6,125	6,413

Note: Figures exclude transit passengers.

Source: Singapore Yearbook of Statistics.

Table 5: Airline Connectivity within the aSEA Region: Number of City Pairs Connected by Scheduled Airline Services, 2009

Country	BRU	IND	MAL	PNG	PHI	SIN	THA	TL
BRU		2	3	0	1	1	1	0
IND	2		8	0	1	6	2	1
MAL	2	8		1	5	6	3	0
PNG	0	0	1		1	1	0	0
PHI	1	1	5	0		3	1	0
SIN	1	6	6	1	3		4	1
THA	1	2	3	1	1	4		0
TL	0	1	0	0	0	1	0	

BRU = Brunei Darussalam, IND = Indonesia, MAL = Malaysia, PNG = Papua New Guinea, PHI = Philippines, SIN = Singapore, THA = Thailand, TL = Timor-Leste.

Note: More than one airline may operate between city pairs.

Source: Airline schedules.

**Table 6: Comparison of Fares (2007) – Full-Service Carriers and Low-Cost Carriers
(US cents per seat-kilometer)**

Routes	Full-Service Carriers				Low-Cost Carriers				
	SQ	MH	PR	TG	5J	3K	TR	AK	FD
SIN–KUL	28.8	42.2							
SIN–BKK	5.4			6.0		1.3	0.9		0.9
SIN–MNL	5.2		5.9		2.3	2.3	1.3		
BKK–KUL		7.4		7.0				1.7	1.9
BKK–MNL			5.7	6.3	2.5				
BKK–SIN	8.7			7.9		0.7	0.9		1.4
KUL–BKK		8.3		11.6				1.7	2.7
KUL–MNL		8.5	6.5		2.2			0.9	
KUL–SIN	19.2	28.8							
MNL–KUL		7.1	5.1		2.0			0.9	
MNL–BKK			4.1	5.0	2.7				
MNL–SIN	4.1		5.0		2.1	1.6	1.0		

Source: B. Solis, and C.L. Rodolfo. 2008. ASEAN Aviation Community and Philippine Developments. Paper presented at the ADB Conference Building Bridges Across the Ocean. November 2008.

Table 7: Average Airline Revenue per Seat-km, 2003 and 2008

City	2003	2008
Manila	7.0	2.9
Bangkok	16.4	7.2
Kuala Lumpur	16.7	6.0
Singapore	13.2	6.9

Table 8: International Aviation – Freedom of the Air

Freedom	Description
First Freedom	The right of an airline owned in country A to fly over country B without landing
Second Freedom	The right of an airline owned in country A to land in country B for nontraffic reasons while en route to country C (i.e., maintenance or refueling)
Third Freedom	The right of an airline owned in country A to carry traffic (passengers, cargo, and mail) from its home country to country B
Fourth Freedom	The right of an airline owned in country A to carry traffic (passengers, cargo, and mail) from country B to its home country
Fifth Freedom	The right of an airline owned in country A to carry traffic between two countries outside its own country of registry as long as the flight originates or terminates in country A
Sixth Freedom	The right of an airline owned in country A to carry traffic between two foreign countries via its own country of registry. The sixth freedom is a combination of third and fourth freedoms.
Seventh Freedom	The right of an airline owned in country A to operate a stand-alone service between two foreign states (e.g., an airline owned in country A operates a service from country B to country C, without originating or terminating in country A).
Eighth Freedom	The right of an airline owned in country A to transport intrastate traffic within a foreign state on a service that either originates or terminates in country A (e.g., a flight originating in country A lands in country B and takes on passengers or cargo for another airport in country B). This freedom is sometimes referred to as "consecutive cabotage".
Ninth Freedom	The right to transport intrastate traffic entirely within the territory of a foreign state (e.g., an airline owned in country A operates a service between two airports in country B). This is commonly known as "stand-alone" cabotage.

Air Connectivity in Archipelagic Southeast Asia: An Overview

The archipelagic region of Southeast Asia consists of 24,000 islands, spread across 5,200 kilometers (kms) from east to west and 3,400 kms from north to south, with a population of about 350 million. Many of the islands are poor, remote from main centers of economic activity, and not well connected. Improving air connectivity can be instrumental in reducing development gaps. The paper examines the importance of improving air connectivity, and the state of the airline industry and the related infrastructure in the region. Special attention is paid to regional policies relating to air transport, and the paper concludes with policy recommendations.

About the Asian Development Bank

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Based in Manila, ADB is owned by 67 members, including 48 from the region. Its main instruments for helping its developing member countries are policy dialogue, loans, equity investments, guarantees, grants, and technical assistance.